COMMENTARY **BC HYDRO**

COMPARING PROVINCIAL ELECTRICITY AND NATURAL GAS SUPPLY AND SALES

How much of the province's electricity is generated from renewable sources? This is becoming an increasingly important question in light of the federal and provincial government's efforts to displace fossil fuel based electrical generation with clean electricity. In addition, some environmental advocates seek to greatly restrict or eliminate the use of natural gas in the province. Aspects of these efforts were discussed in my paper recent *Replacing Natural Gas with Clean Electricity is Unrealistic*.[1]

The provincial electricity market is supplied by BC Hydro and its contracted Independent Power Producers (IPP), while FortisBC Electric (FBC) supplies customers in the southeast. In 2022/23, BC Hydro produced some 46,300 GWh from owned sources, of which 99.6% was hydroelectric. When the IPP and FBC sources are included, the total electricity rises to approximately 65,250 GWh and approximately 60,000 GWh, or 92.0% are from hydroelectric sources.

The Broader View

But focusing on only electricity misses a major part of the provincial energy mix, because natural gas is also an important source for space heating, hot water, and cooking as well as industrial uses. Widening the perspective to include both energy sources provides a more complete picture of this aspect of the province's energy mix.[2]

In an attempt to equate the natural gas sales measured in petajoules to gigawatt hours a factor of 1 PJ to 278 GWh was used.[3] This was applied to the 2022 calendar year sales

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[1] https://www.bcpolicyperspectives.com/media/attachments/view/doc/commentary_replacement_of_natural_gas_1_april_2024_2/pdf/commentary_replacement_of_natural_gas_1_april_2024_2.pdf

[2] Not included in this discussion is the small amount of diesel oil and home heating oil used in small communities not connected to the electrical grid, or to natural gas lines.

[3] https://www.google.com/search?q=pj+to+gwh&rlz=1C1GCEA_enCA817CA817&oq=PJ+to+&gs_lcrp=EgZjaHJvbWUqBwgFEAAYgAQyCQgAEEUYOxiABDIHCAEQABiABDIGCAIQRRg5MgcIAxAAGIAEMgcIBBAAGIAEMgcIBRAAGIAEMgcIBhAAGIAEMgcIBxAAGIAEMgcICBAAGIAEMgcICRAuGIAE0gEJMTAyNTFqMGo3qAIAsAIA&sourceid=chrome&ie=UTF-8

by FortisBC gas (FEI), as shown in Table 1. The FBC data is also for the 2022 calendar year, while the BC Hydro and IPP data are for the 2022/23 fiscal year (April to March).

Table 1 provides a summary view of the total energy supply, including hydroelectric (54.2%), natural gas (42.0%) and other sources of electricity (3.8%). Of interest was the fact that FEI provided the equivalent of 45,500 GWh of electricity, which was almost the same as provided by BC Hydro's owned generation. Small amounts of electricity (1,779 GWh) were generated by wind turbines, while solar generation was almost non-existent.

TABLE 1—BC ENERGY SUPPLY 2022/23 (GWh Equivalent)

	GWh	Per Cent
Hydroelectric		
BC Hydro owned	46,137	41.7
IPP	10,312	9.3
Fortis FBC	3,542	3.2
Total	59,991	54.2
Natural Gas		
BC Hydro	175	0.2
IPP	903	0.8
Fortis FEI	46,426	41.0
Total	47.504	42.0
Wind IPP	1,779	1.6
Biomass IPP	1,745	1.6
Biogas IPP	45	--
Solar IPP	3	--
Other IPP	(87)	0.6
Total	3,485	3.8
Grand Total	**110,980**	**100.0**

Source: BC Hydro 2022/23 annual report, p. 134; FortisBC Electric and Gas Annual reports for 2022; IPP data from BC Hydro to author February 4, 2024.

In 2022/23, BC Hydro produced approximately 1,300 GWh of electricity that was not required for domestic purposes. The low water levels in 2023/24 reversed the situation and required BC Hydro to import large amounts of power to meet domestic needs.

Sales by Customer Class

In 2022/23 (calendar 2022 for FBC and FEI), total electricity and natural gas GWh equivalent sales (including line loss) were approximately 109,300 GWh. Table 2 shows

that residential sales comprised 41.3%, commercial and light industrial comprised 35.6%, and large industrial customers comprised 17.6%.

TABLE 2—SALES BY CUSTOMER CLASS 2022/23 (GWh Equivalent)

	BC Hydro	FBC	FEI	Total	Per Cent
Residential	19,547	1,398	24,186	45,131	41.3
Commercial	19,247	1,602	16,958	37,807	35.6
Large Industrial	13,437	542	5,282	19,261	17.6
Other	2,028	--	--	2,028	1.9
Line Loss	5,118	--	--	5,118	4.7
TOTAL	59,377	3,542	46,426	109,345	100.0
Per Cent	54.3	3.2	42.5	100.0	

Source: BC Hydro 2022/23 annual report, p. 134; FortisBC Electric and Gas Annual reports for 2022 for PJs.

BC Hydro sales (including line loss) totalled 54.3% of the GWh delivered to domestic customers, while FortisBC gas supplied 42.5% of the total GWh. Of interest is the fact that FEI delivered more GWh equivalent power to residential customers in calendar year 2022 than did BC Hydro in fiscal 2022/23.

This analysis highlights the importance of natural gas to the total provincial energy supply. Any plans to decarbonize the province's energy supply must explain how such a massive undertaking is to be achieved, and at what cost to BC Hydro's ratepayers. The current government's CleanBC initiative assumes that new sources of clean energy can be developed to replace the existing natural gas GWh equivalent power, as well as meeting new demands for clean power required to expand the provincial economy. All this while adhering to the objective of affordable electricity prices.

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The writer is a retired senior BC government public servant whose paper describing the BC government's manipulation of the finances of BC Hydro from 2008 to 2014 was published by BC Studies in November 2016. BC Studies published his paper on the 40-year financial history of ICBC in 2013. He is an intervener in the BC Utilities Commission's reviews of ICBC's and BC Hydro's rate requests.